Elise Goldfine

Sam Kolovson

Honors Physics

Dr. Sci

2/28/11

**Egg Drop Project: Post-drop Analysis**

Our device did not perform as expected. The egg shattered upon impact with the floor because the device was too heavy, too small, and unbalanced. Because the device was too heavy it had a greater momentum and therefore hit the ground with a greater force than it would have otherwise. We know this because of the momentum equation, p = mv. This means, the larger the mass, the greater the momentum. Also, the change in the momentum over change in time equals the net force, so when the momentum increased the force acting on the egg is also increased.

Since it was too small, when the device hit the ground the rubber bands were not able to keep the egg within the confines of the device. The elasticity of the rubber bands was large enough to allow the egg to strike the ground; basically, the rubber bands were too loose and were not able to counter the force of the impact. Therefore, the time of impact was not large enough to make the impulse negligible.

Lastly, the unbalance of the structure caused it to fall at an angle, so it struck the ground on its side rather than on the bottom as intended. The egg was significantly closer to the side and less supported by rubber bands in the horizontal direction, and therefore easily hit the ground.